

CLAIMS:

1. A packaging system for producing a foam-in-bag cushion upon demand comprising
  - 5 a bag formed of flexible plastic film material and defining therein an enclosed space of a volume corresponding to the size of the foam cushion to be produced, said enclosed space being vented to the outside of said bag to permit the escape of gases generated during the formation of the foam cushion while preventing the escape of foam therefrom,
  - 10 a foam precursor packet positioned at a predetermined location within said enclosed space in said bag and being formed of a barrier material capable of maintaining foam precursor components in a relatively stable and unreacted state, said packet including a first compartment and a second compartment with a first frangible seal separating said first and second compartments and adapted to be ruptured when it is desired to form the foam cushion, said packet also including a second frangible seal between one of said compartments and said enclosed space in said bag,
  - 15 a first foam precursor component contained in said first compartment of said packet,
  - a second foam precursor component contained in said second compartment of said packet,
  - 20 said first and second foam precursor components being adapted to be mixed upon rupture of said first frangible seal and to react to form foam which will rupture said second frangible seal and expand from said packet into said enclosed space in said bag until said enclosed space is substantially filled with foam and said foam cushion is formed, and
  - 25 said frangible seals having a peel strength of at least about one-half pound per inch and less than about twelve pounds per inch.
2. A packaging system according to Claim 1 wherein said first frangible seal has a peel strength less than the peel strength of said second frangible seal.

3. A packaging system according to Claim 2 wherein said first frangible seal has a peel strength within the range of about 0.5 to about 3.5 pounds per inch.
4. A packaging system according to Claim 3 wherein said second frangible seal has a peel strength of about 4 to 7 pounds per inch.
- 5 5. A packaging system according to Claim 1, including means for securing said packet in said bag at said predetermined location.
- 10 6. A packaging system according to Claim 1 wherein said frangible seals are each formed by a band of printing extending along one of the contiguous surfaces of said packet, said band of printing comprising a pattern of spaced apart printed areas separated by a grid of spaced apart seal lines in orthogonal or non-orthogonal fashion throughout the length of said frangible seals.
7. A packaging system according to Claim 6 wherein said grid of spaced apart seal lines is disposed such that the seal lines run at an oblique angle to a line perpendicular to the side edges of said packet.
- 15 8. A packaging system according to Claim 6 wherein said grid of spaced seal lines are arranged in a regular matrix having a density of at least about 6 matrix lines per inch.
9. A packaging system according to Claim 8 wherein said matrix has at least about 50 matrix lines per inch.
- 20 10. A packaging system according to Claim 6 wherein said grid of spaced apart seal lines define a plurality of converging pockets having a wide end facing the compartments and a narrow end at said frangible seals whereby said precursor components enter said pockets through said wide ends and flow toward the narrow ends thereof, causing progressive peeling apart of the panels in the region of each of
- 25 said converging pockets.

11. A packaging system according to Claim 10 wherein said pockets are triangular in shape.
12. A packaging system according to Claim 10 wherein said converging pockets are V-shaped.
- 5 13. A packaging system according to Claim 10 wherein said converging pockets are cusp-shaped.
14. A packaging system according to Claim 10 wherein said converging pockets are U-shaped.
- 10 15. A packaging system according to Claim 6 wherein said grid of spaced apart seal lines includes seal lines intersecting at substantially right angles.
16. A packaging system according to Claim 6 wherein said grid of spaced apart seal lines includes seal lines which intersect at angles other than 90° to form a diamond shaped grid.
- 15 17. A packaging system according to Claim 6 wherein said band of printing comprises a pattern of spaced apart printed areas separated by unprinted areas defining a grid pattern in which the lines of unprinted surface areas do not intersect but have overlapping portions which would be intersected by a straight line drawn across the grid.
- 20 18. A packaging system according to Claim 17 wherein said grid defines a saw tooth pattern.
19. A packaging system according to Claim 17 wherein said grid defines a sine-wave pattern.
- 25 20. A packaging system according to Claim 6 wherein said band of printing comprises a pattern of printed areas with unprinted areas and wherein said printed areas cover at least about 60 percent of the surface area of said band of printing.

21. A packaging system according to Claim 20 wherein said printed areas cover at least about 80 percent of said band of printing.

22. A packaging system according to Claim 20 wherein said unprinted areas comprise half-tone dots.

5 23. A packaging system according to Claim 1 wherein said first frangible seal comprises a pair of spaced apart seals separated by an unsealed region of the band of printing.

24. A packaging system according to Claim 23 wherein said second frangible seal comprises a pair of spaced apart seals separated by an unsealed region.

10 25. A packet for use in a form-in-bag packaging system comprising first and second juxtaposed panels formed of a barrier material capable of maintaining foam precursor components in a relatively stable and unreacted stated, said panels being joined around the periphery thereof to define an enclosed space therebetween,

15 a first frangible seal extending across said panels and dividing said enclosed space into first and second compartments separated by said first frangible seal, said frangible seal having a peel strength of between about one pound per inch and about six pounds per inch,

20 a first precursor component in said first compartment, and  
a second precursor components in said second compartment.

26. A packet according to Claim 25 including a second frangible seal between one of said compartment and the exterior of said packet, said second frangible seal having a peel strength greater than said first frangible seal but less than a non-frangible heat seal of said panels.